REMARKS ON THE USE OF THE OBSTETRIC FORCEPS.

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CONSIDERABLE courage is required to bring forward for discussion at this time so trite a subject as the obstetric forceps; but, considering the wide-spread use of this instrument, its capacity for evil in the hands of the unskilled or the unwise, the diversity of views respecting the forceps existing at all times, and the changes which the prevailing sentiment regarding it has undergone at different periods, I believe the discussion of the subject to be always in order and always likely to be attended with good.

Certain facts in the history of the forceps have struck me forcibly in reading, at different times, the literature upon the subject in our own language, and which, I believe, should not be without their weight with us at the present day. Conservatism is not always wisdom, nor, on the other hand, is all progress improvement. Those who are familiar with the history of the obstetric forceps from the time of their general introduction among the profession in England to the present day know that, when first brought into public notice, it was eagerly seized upon by the profession, and was at once recognized as a most important artificial aid in labor. Among the most prominent advocates for the use of the forceps, of whom we have knowledge, in the early time, were William Giffordˢ and Edward Chapman, followed twenty years later by Smellie. Smellie was a bold and skilful user of the forceps, advocating its free application, and was probably fully abreast, in his own practice, with the most fearless advocates of the use of this instrument in the present time. There is no doubt that the forceps for the first twenty years of its popularity in England was most recklessly used; so that at the beginning of the last half of the eighteenth century much prejudice against this instrument became manifest.

The admirable work of Smellie, both literary and practical, did not check the tide of reaction against the forceps, and it may with truth be said that for a whole century, beginning with the middle of the eighteenth and terminating with the middle of this, nearly all English obstetric teachers and writers of note advised either a most limited use of the forceps or its total abandonment as an obstetric instrument. Indeed, Smellie himself, though the warmest advocate in England of its use during the middle period of the last century, was fully aware of the dangers incident to it in the hands of the imprudent, and so cautious was he in his advice to the inexperienced that he refrained for many years from recommending, or even showing, his long forceps to his class. "In order," he says, "to disable young practitioners from running such risks, and to free myself from the temptation to use too much force, I have always recommended the forceps so short in the handles that they cannot be used with such violence as will endanger the woman's life." And again he says, "But if these expedients be used prematurely, when the nature of the case does not absolutely require such

assistance, the mischief that will ensue will often overbalance the service for which they are intended." In after-years he wrote, "I did not then recommend the use of them [the long forceps], because I was afraid of encouraging young practitioners to exert too great force and give their assistance too soon."

At the time Smellie wrote, the forceps had been known to the profession at large in England for twenty years, and, as we have seen, this lapse of time had been sufficient for him to recognize not only the utility of the instrument, but also some, at least, of the dangers of its indiscriminate use. Smellie's views advocating an extended use of the forceps did not pass unchallenged during his lifetime. Indeed, he was vigorously attacked by other writers of his day; but perhaps the most violent opposition appeared in an anonymous publication in 1772, in which the writer says, "This instrument [the forceps] was for some time in the possession of a few practitioners only, nor has it been publicly known above forty years. But as soon as it was made public, it is surprising with what avidity it was adopted, insomuch that for the first twenty years the whole study of the men midwives was how to new model and improve its form and make, to delineate the various methods of using it, and to demonstrate in what a variety of situations and positions of the child it might be serviceable, till they, by degrees, found out that there could hardly occur a case of midwifery but where the forceps might be used with advantage. . . . I can hardly, therefore, fancy myself exceedingly presumptuous if I declare the forceps to be quite as useless to women in labor as either the blunt hook or fillet. But I must beg leave to go still a little further upon this head, and observe that this is not only a useless but also a very pernicious instrument; for by hastening delivery before the parts are properly distended by the natural pains and strainings of the mother, such dreadful lacerations are made, both internally and externally, as must frequently prove fatal, or, at least, the source of much inconvenience and misery to the unfortunate woman who has been the subject of such practices. . . . Nor am I by any means singular in my opinion of the inutility of this instrument. The best practitioners in midwifery have given it up, and very seldom have recourse to it; and I am credibly informed that the man who has, for many years, been deservedly esteemed the practitioner of greatest skill and judgment of any who profess the obstetric art in this kingdom" (Dr. William Hunter, evidently) "declares that he has seldom or never, during the whole course of his practice, used the forceps, or met with a case where he thought it necessary to do so; unless he may be said to use them when he occasionally introduces a single blade to remove any impediment which the head of the child may accidentally meet with by pressing upon some of the bones of the pelvis, whereby its descent and delivery are retarded; but he adds that occasions for this very seldom happen; he could almost always get the better of such obstacles with the hand only." Although an anonymous publication is not usually deserving of much consideration, yet this one is of value, inasmuch as it reflects pretty accurately, in so far as we are able to judge, the prevailing opinion of the time among the most prominent obstetricians in England. William Hunter's practice is probably not accurately described by the writer, but Hunter himself declared that, upon the whole, the forceps had "done more harm than good." For nearly a century almost all writers of note in the English language held views but little in advance of those last quoted. William Hunter, Denman, Osborne, Blundell (who was first to propose the so-called Porro modification of Cæsarean section), Robert Lee, and, in America, Meigs, were all advocates of conservatism in the use of the forceps. What similar array of eminent names can be collected among obstetric writers in any age! These were the men from whom most practitioners past middle life at the present day among English-speaking people all over the world have drawn their theoretical knowledge of obstetrics. Denman says, "It is scarcely possible to say too much against a hasty recourse to the forceps, even in cases which may ultimately be relieved by using them, and neither this nor any other instrument is now used in the practice of midwifery one-twentieth part as frequently as they were fifty years ago. . . . The use of instruments of any kind ought not to be allowed in the practice of midwifery from any motives of eligibility. Whoever will give himself time to consider the possible mistakes and want of skill in younger practitioners, which I fear many of us may

recollect, the instances of presumption in those who, by experience, have acquired dexterity, and the accidents which under certain circumstances seem scarcely to be avoided, will be strongly impressed with the propriety of this rule, as well as from the general reason of the thing." Again he says, "If we compare the general good done with instruments, however cautiously used, with the evils arising from their unnecessary and improper use, we might doubt whether it would not have been happy for the world if no instrument of any kind had ever been contrived for, or recommended in, the practice of midwifery." And he adds as a rule for the application of the forceps, "a practical rule has been formed that the head of a child shall have rested for six hours as low as the perineum, that is, in a situation which would allow of their application before the forceps are applied, though the pains should have altogether ceased during that time." Dr. Robert Lee approves of this rule as being well calculated to prevent "the rash and unwarrantable use of the forceps," but says that in some cases of rapid exhaustion, or of sudden accident, "it would be wrong to comply with it." Osborne says, "In the state indicating the use of the forceps, all the powers of life are exhausted, all capacity for further exertion is at an end, and the mind is as much exhausted as the body." Blundell writes, "If you must err, then take my advice and err rather by the neglect and rejection of instruments than by their too frequent use; for the cases in which you may use instruments without need are as numerous as the cases that fall under your care, with the exception of the few, very few, in which these weapons are really required." Among the rules laid down by Denman were that "the use of the forceps can never come into contemplation unless the os uteri is fully dilated," and that "no case is to be esteemed eligible for the use of the forceps until the ear of the child can be distinctly felt." Dr. Robert Lee insists upon the observance of the latter rule, and says, "I have never met with a case in which the forceps was satisfactorily applied before the os uteri was fully dilated and the head had descended so low that an ear could be felt." Professor Charles D. Meigs wrote, "The forceps cannot be applied unless the parts are favorably disposed; for instance, the os uteri must be dilated and gone up over the head. The vagina and perineum, also, must be in such a condition that we need have no fear of lacerating any of their parts, else the operation is contra-indicated. A man shall hardly be justified who inserts his forceps within the os uteri. He must wait until the circle has risen above the parietal protuberance and can no more be felt." Dr. Meigs considered that the idea that the forceps is, in its design, a compressive instrument was "one of the most dangerous errors relative to the forceps."

I cannot better summarize the views of those whom I have above quoted than to extract from a paper by Dr. W. Tyler Smith (Trans. Lond. Obst. Soc., 1860) the following: "Thus, we have in our day eminent authorities declaring in favor of the following conditions in regard to the use of the forceps:

"1st. That, in ordinary cases, the head must have rested for some hours on the perineum before the instrument is used.

"2d. That the forceps ought not to be employed unless an ear of the child can be felt.

"3d. That the forceps must never be introduced until the os uteri is completely dilated.

"4th. That it is gross malpraxis to introduce the blades of the forceps into the uterus.

"5th. That the forceps should not be used as a compressor."

Notwithstanding the restrictions thrown around the use of the forceps by most of our obstetric teachers for nearly a century, it is doubtful if their rules were implicitly followed by even a majority of enlightened obstetric practitioners at any time during this period. As the history of the experiences of those engaged in extensive private obstetric practice, who were not writers, comes gradually to light, we find, particularly in the United States, that a much greater freedom in the use of this instrument has been indulged in than the above rules permit of. On the continent of Europe the forceps has always been more freely used than in England, and the influence of French obstetric teachings has always been felt to a certain extent in England and in our own country. It has, however, only been within the past twenty-five years that English writers of note have, to any extent, been bold enough to oppose the teachings of the eminent men

whom I have so extensively quoted. It is not too much to say that now the reaction has fairly set in, and that no writer in the present day would have the temerity to advance in public the views so strenuously insisted upon by William Hunter, Denman, and others in their times and long afterwards. We now feel that we have good authority for violating every one of the five rules above given: that the forceps may be applied to the fœtal head at any portion of the parturient canal; that they may be applied to the fœtal head within the cavity of the uterus; that they may be so applied when the os uteri is only sufficiently dilated to admit of the introduction of the blades; that when thus introduced they may be used as dilators of the os uteri; that not only may the forceps be used as compressors, but that such use is often a valuable aid to the delivery of the woman with safety not only to her but to the child. The latter view was long taught by the late Prof. Hodge. All these things are not only done repeatedly in the present day, but the claim is made that with such free use of the forceps life is not sacrificed, but saved,—that the health of the woman is not impaired, but conserved. Let us inquire into the subject, and learn, if we can, whether we are right or wrong in holding to the modern view: whether we should follow the great men of the past because they were wise in other things; or whether we can prove by the results of a more extended use of the forceps that they environed the use of this instrument with unnecessary restrictions, —that their caution was not wise. Unfortunately for us, the statistics which are available furnish us only with the immediate results as affecting the life or death of the woman and child. They also treat only of cases occurring under the care of men of acknowledged ability far superior to the average practitioner. Such as they are, they seem to justify the wisdom of a frequent resort to the forceps. It is unnecessary to give here those oft-quoted statistics of Clarke, Collins, Johnston, Siebold, and others, which can be found in almost any text-book on obstetrics. It is sufficient to say that they show an almost exact inverse ratio between the frequency of forceps applications and maternal deaths. These principally refer to hospital practice. When we come to examine the statistics of private practice, we find much greater discrepancy in the relative proportions of forceps cases and deaths. Thus, Dr. Robert Dunn ("Statistics of Midwifery in Private Practice, embracing Twenty Years," Trans. Lond. Obst. Soc., 1860) reports, out of four thousand and forty-nine cases, twenty forceps, or one in two hundred and two, and twenty-seven maternal deaths from all causes, six of which were from remote diseases, leaving twenty-one deaths, or one in one hundred and ninety-three. Dr. Knoggs ("Statistics of Midwifery in Australia," *Dublin Med. Jour.*, June, 1882) reports on fourteen hundred and thirty cases attended by himself and assistants, of which forceps cases bore the proportion of one in nine. Maternal deaths from all causes, one in one hundred and two. The late Dr. William Harris, of this city, used forceps once in every seven cases, with no deaths. In my own practice I have applied forceps about once in ten cases, with no maternal deaths. These are given only as specimens of reports of private practice; more could be added were it necessary, but these, I think, will suffice to show that the forceps can be used with great frequency and with little immediate mortality to the mother. It must be admitted that, so far as death of the woman while in labor or during the puerperal period is concerned, all statistics show, unquestionably, that frequent resort to the forceps has been attended with the most favorable results. The inference that such use of the instrument is, on the whole, beneficial is open to two sources of fallacy. One is the fact, before mentioned, that all hospital reports, and most, if not all, reports of private practice, represent the experience of men of ability far above the average. The other source of fallacy is that we have no accurate statistics of the remote ills ensuing from the use of forceps. In regard to the first point, it may be said that it is impossible to ascertain the truth; we can only surmise. The large majority of labor cases which fall at all under the care of physicians are attended by men of average ability, the results of whose cases are known, as a whole, to themselves only. We can, therefore, judge only by what we see, or by what accidentally comes to our knowledge. In such cases, when death ensues after an instrumental delivery, we know not how much to ascribe to the forceps and how much to other things. This much only can be said, that the fa-

vorable results from the use of forceps by the exceptionally wise and skilful should not be accepted as a criterion of similar cases in the hands of the profession at large. No one was better aware of this than Smellie, who, having perfected, as he believed, a most valuable instrument, refrained from announcing his discovery to his class or showing them the long forceps, for fear that they, through reckless use of it, might not only inflict an evil on society but bring his invention into disrepute.

I now come to speak of the remote results of the use of the forceps, to which I have already alluded as constituting the second source of fallacy to the inferences likely to be drawn from the published statistics. We have no accurate information affecting this matter, for the following reasons. Many women are attended by the same accoucheur in one labor only. This is eminently true in hospital practice, but is also the case, to some extent, in private practice. In these cases but little opportunity is afforded to learn the after-history. Again, the injuries inflicted often do not become apparent for years afterwards; and even when the woman has been attended in successive labors by the same physician the results of his treatment in many cases cannot with certainty be fully ascertained until late in her sexual life. Years, therefore, are necessary to teach us, if we learn from our own experience only, the best methods of practice. Again, when the remote results in all their details are known, few men have the courage, or care, to undertake late in life the thankless task of reporting all the mischief they have unwittingly done. This we know, however, that men become more and more patient with nature and less anxious to interfere with her laws by hasty use of the forceps as they approach the close of a long obstetric career. Our only means of judging of the amount of injury done by this instrument, aside from observation in our own cases, is what we see of other men's obstetric practice in our gynæcological cases. What are the remote ills liable to result from the use of forceps? They are those depending upon bruises, lacerations, and excessive or rapid dilatations occurring during labor. It is true, these injuries may occur under any circumstances; but nature in her wisdom regulates the expulsive forces in strength and character so as best to protect the maternal tissues from injury: when, therefore, we seek to hasten the process of labor unwisely, we always endanger their integrity. Bruising of the pelvic structures may result in inflammation of the uterus, ovaries, bladder, urethra, the peritoneum, or the pelvic connective tissue, with their attendant annoying symptoms, which I need not enumerate, as they are familiar to all of us. Lacerations may lead to the same, but in addition, if not promptly repaired, they, by weakening the uterine supports, may result in various displacements of the uterus and other pelvic organs. The formation of obstructive cicatrices on the one hand, and of vesico-vaginal and recto-vaginal fistulæ on the other, are occasional results of the same class of injuries. Excessive or violent dilatations of the parturient canal, unattended by palpable lacerations, I believe, are largely responsible for prolapsus and other displacements of the uterus. A brief review of the anatomy of the pelvic organs of generation in woman will show us that the uterine supports are numerous. I will not refer to those which tend especially to keep the fundus in its normal position, inasmuch as we are chiefly concerned, in the present inquiry, with those whose principal office it is to maintain the uterus at its proper level in the pelvic cavity. A section from before backwards, through the median line of the pelvis, shows us the uterus supported upon a column which commences below with the strong muscular and fibrous structure constituting the floor of the pelvis. Rising from the latter in the line of the pelvic axis is the recto-vaginal septum, composed of connective tissue; in front and above this lies the posterior wall of the vagina in close contact with the anterior wall of the same passage, which extend together to the lower extremity of the uterus. The two walls of the vagina are kept in contact by the pressure of the abdominal walls and contents acting upon the bladder in front and the intestines behind, the latter consisting of the rectum and a loop of small intestine pressed down into the cul-de-sac of Douglas. Thus the generative organs stretch from side to side of the pelvis throughout its whole extent, from the superior to the inferior strait, like an open valve, and receive the pressure of the abdominal contents in an equal degree on their anterior and posterior surfaces, the *point d'appui* being the strong muscular and fibrous structure constituting

the floor of the pelvis. Lacerations, therefore, extending into the floor of the pelvis, through the perineum, we can easily see, seriously weaken if they do not wholly destroy the supporting column upon which the uterus is placed. Excessive dilatation of the vagina and vulva, with laceration of the posterior vaginal wall, or even, in all probability, without any laceration, seriously weakens this support, even though the perineum remain intact. Unless these injuries are repaired either by the efforts of nature or the physician, a certain amount of prolapsus of the uterus will occur soon after the woman assumes the erect position, but this displacement will not immediately become considerable, on account of other supports with which the uterus is supplied. Savage found that in the cadaver, when all the supports of the uterus from below were divided, he could, by means of a pair of volsella forceps inserted into the cervix uteri, draw the entire organ down to only a limited extent. On looking for the structures which resisted the farther descent of the uterus, he found them to consist of the strong fibrous bands constituting the utero-sacral ligaments. These ligaments have their origin on the anterior surface of the sacrum, chiefly at its upper part, and run forward on either side of the rectum and the cul-de-sac of Douglas to the uterus, to which organ they are attached at the point of junction of the cervix with the body; prolongations are continued forward to the bladder and pubic bones. When these were divided, the uterus could be drawn down one inch farther; the broad ligaments with their enclosed connective tissue had to be divided before complete procidentia of the uterus could be artificially produced.

Savage thus demonstrated that injury to the utero-sacral ligaments is an essential factor in the production of marked prolapsus of the uterus, though this may be accomplished by the prolonged traction of an abnormally heavy uterus deprived of support from below. Now, these ligaments may be injured either by laceration extending through the cervix uteri, or, without such injury to the cervix, they may, by forcible dilatation of the neck of the uterus, be themselves torn and distended in a similar manner to the ligaments of a sprained joint. All lacerations of the parturient canal extending into the mucous surfaces can be at once detected after delivery and repaired at any time the attending physician may select. Injuries to the utero-sacral ligaments when entirely submucous cannot be discovered for months, perhaps not for years, and, furthermore, are never amenable to operative treatment. They are, in fact, incurable, and can only be palliated. Prolapsus of the uterus and other displacements of that organ, with all their annoying symptoms, are liable to ensue after a time upon this injury. The special symptoms resulting from laceration of the cervix uteri alone in certain cases I need do no more than refer to, as they have been the theme of much discussion among gynæcologists within the past few years. If we are to give full credit to Emmet and his followers, they give rise to some of the most serious general and local diseases, predispose the sufferer to the development of epithelioma of the cervix, and produce the most painful and distressing nervous ailments.

I do not think I have overdrawn the picture of the injuries which the forceps is capable of producing. I do not mean to say that these are, by any means, exclusively due to the use of this instrument, but I do mean to say that a certain proportion of such injuries to the parts below the uterus, and by far the largest proportion of those to the cervix and utero-sacral ligaments, are due to the use of the forceps: the latter class can ensue from the use of this instrument only when it is applied through the partly-dilated os uteri. Notwithstanding the foregoing remarks, I wish it to be clearly understood that I approve of the application of the forceps at any portion of the parturient canal. I have repeatedly applied it through the imperfectly dilated os, and will so apply it again when circumstances seem to require it; but I consider the use of the instrument to be *never* without some degree of danger to the well-being of the woman, and that therefore it should never be used as a means of saving time unless we think we see that delay is likely to compromise the life or health of the mother or child. The danger becomes greater with the height at which the instrument is applied, not so much from the introduction of it as from the use we are tempted to make of the enormous power which this instrument places in our hands. The danger rather increases than otherwise as we acquire dexterity in introducing the forceps; for then we are not deterred by fear of inability to apply them.

What are we to learn from the extreme caution of Hunter, of Denman, of Osborne, of Blundell, of our own Meigs, of Lee? What are we to think of the illustrious Smellie, the father of modern operative obstetrics, hiding his newly-discovered light under a bushel, not to be seen of men less prudent than himself? We are to learn and to think that these men knew the obstetric forceps essentially as we know them, and that they knew—none better than Smellie—the evil of which the forceps was capable in the hands of the ignorant or reckless accoucheur. These men knew the value of time in obstetrics,—time for the dilatation of the maternal parts and for the moulding of the head. I have, in the past, used the forceps freely,—more, I now admit, than was requisite, notwithstanding I have been singularly fortunate in the results of my cases; but when I came to have more confidence in my ability to judge of the condition of the mother and child, of just how much the former would bear without failure of strength, and how much the latter could endure without danger of asphyxiation, I was astonished to see difficulties disappear before the natural efforts of the mother which at first seemed imperatively to require instrumental interference. If one will only keep from irritating the mother's tissues by frequent examinations, and will, at the same time, soothe her mind by the exhibition of that calmness and confidence which are so contagious, instead of displaying anxiety in his countenance and worrying his patient by constant investigations, he will often see a wakeful, nervous woman become calm and disposed to sleep, an irritable uterus become less painful, a rigid os become relaxed, and pains which are inefficient, and exhausting to the woman and threaten the child with asphyxia, become rhythmical, efficient, bearable to the woman, and safe to the child.

The beneficial effects of quietness of mind and freedom from apprehension on the progress of labor are beautifully exemplified in those cases, more or less familiar to us all, of very early rupture of the membranes. The mother is prone to take alarm at the event; as a consequence of this alarm, the uterus is soon thrown into frequent, painful, and inefficient contractions. From the almost constant pressure of the presenting part upon the os uteri, this too becomes irritable and rigid. While she is in this state, let the wise physician enter with reassuring looks and conduct, calm his patient's mind with these, and allay her pain with an occasional dose of opium, and the scene changes: rest and quiet of mind and body soon lead to happy results.

My object in writing this paper is to call attention, in this age of most free, if not reckless, use of the forceps, to what we are doing in all its bearings; to compare ourselves with those who were at least our equals in the past, and to ask whether they were all wrong and we altogether in the right. To repeat what I have already said, while conservatism is not always wise, neither is all progress improvement. While I would not hedge the forceps round with rules which would often restrict its proper use, I submit that teachers in the present day err in not impressing upon the minds of their auditors, with sufficient emphasis, the dangers attendant upon the imprudent use of the forceps, particularly when it is applied within the uterus, and in not calling their attention more closely to the value of time and of the slow, rhythmical succession of the expulsive efforts, whether made by the mother herself or imitated by the physician with his forceps, in so moulding the fœtal head and dilating the maternal parts as to preserve the integrity of the tissues of both, without interfering dangerously with the uterine or placental circulation. To my mind, there is wisdom in the words of the illustrious Smellie, who more than a century ago wrote the sentence already quoted: "I did not then recommend the use of" the long forceps, "because I was afraid of encouraging young practitioners to exert too great force and give their assistance too soon."

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